

UNILATERAL TESTICULAR EVISCERATION FOLLOWING TRAUMA IN A MALE CAT: A CASE REPORT

EVISCERAȚIA TESTICULARĂ UNILATERALĂ POSTTRAUMATICĂ LA MOTAN: RAPORT DE CAZ

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ABSTRACT | REZUMAT

The aim of this case report is to describe clinical findings, treatment, and outcome of an acute unilateral testicular evisceration, following trauma, in a feline patient. Case management included early surgical exploration followed by bilateral orchiectomy. The cat made an uneventful recovery. This case highlights the fact that despite low reporting incidence, testicular evisceration should be included on a differential diagnosis list in male reproductive injuries of cats. To the best of our knowledge, previous reports are still lacking and a true incidence in clinical practice remains unknown at present among feline scrotal pathology.

Keywords: orchiectomy, testis, testicular injuries, traumatic injury

Scopul acestui raport de caz este de a descrie aspectele clinice, tratamentul și evoluția unui caz de eviscerație testiculară unilaterală acută, posttraumatică, la un motan. Gestionarea cazului a inclus intervenție chirurgicală rapidă, urmată de orhiectomie bilaterală. Pacientul s-a recuperat fără sechele. Acest caz evidențiază faptul că, în ciuda incidenței scăzute raportate, eviscerația testiculară ar trebui inclusă pe lista diagnosticelor diferențiale a patologiei tractusului reproductiv la mascul. Din câte știm, în patologia scrotală la feline nu există rapoartări anterioare ale eviscerației testiculare, iar în prezent incidența în practica clinică rămâne necunoscută.

Cuvinte cheie: orhiectomie, testicul, leziune testiculară, leziune traumatică

Traumatic scrotal lesions are uncommon in small animal practice, despite the exposed location of the scrotum. Scrotal pathology that requires surgery is less frequent and there is a lack of information on this subject (6). Scrotal traumatic injuries are classified either as superficial or penetrating (9). Penetrating injuries of the scrotum can become complicated with periorchitis, testicular infarction and necrosis (10). Major injuries require debridement and surgical closure (22); in severe cases involving the testicle, orchiectomy and scrotal ablation should be considered. On the contrary, nonpenetrating testicular injuries rarely require surgical exploration and drainage (9). Testicular and peritesticular injuries represent an emergency and need prompt diagnosis and treatment. Detailed physical examination with careful assessment of the pattern of injury can lead to a proper diagnosis, that ultimately will aid in determining whether medical or surgical therapy is necessary (2). Ultrasonography, magnetic resonance imaging (MRI) and computed tomography (CT) can also be considered in treatment decision making (19).

CASE PRESENTATION

A-10-month-old tomcat, domestic shorthair, weighing 3.5 kg was presented for evaluation with a history of recent vehicular trauma. Further history highlighted an indoor/outdoor cat, with free access to the garden and surroundings. Thorough physical examination revealed lethargy, pale mucous membranes, poor pulse quality, and recumbence. He was tachypneic, but thoracic and cardiac auscultation were unremarkable. Other findings included a dense globular structure located externally, on the dorsal aspect of the scrotum. Careful manipulation showed an enlarged testis, epididymis and distal spermatic cord, all covered by parietal tunica vaginalis. In addition, regional skin injury, perianal ecchymosis, extended perineal subcutaneous bruising and erythema were noted. The contralateral left testicle remained intact and hemiscrotum had a normal appearance except for a discrete erosion. The exposed structure revealed signs of acute inflammation, marked edema of the spermatic cord structures and parietal tunica vaginalis, a moderate enlargement of the testis with low-grade torsion, accompanied by discrete right hemiscrotal swelling. Serum biochemistry was performed (Table 1) and revealed marked elevation of creatine kinase (CK) acti-

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vity owing to skeletal muscle damage, discrete elevation of alanine aminotransferase (ALT) activity, transient stress-related hyperglycemia, a mild increase in lactate concentration and hypokalemia. Complete blood count (CBC) report (Table 2) showed discrete nonspecific changes and pseudothrombocytopenia due to platelet agglutination. Radiological examination revealed a pelvic fracture, but no other lesions. Additional diagnostic testing, represented by ultrasonography (AFAST) and electrocardiogram were both unremarkable.

Table 1**Summary of serum biochemistry**

Test	Result	Reference range**
Albumin (g/dl)	2.18	
Urea (mg/dl)	40.6	30 - 66
Creatinine (mg/dl)	0.76	0.56 - 1.8
ALT (U/L)	*66.2	< 60
GGT (U/L)	8.3	< 10
Glucose (mg/dl)	*234.2	72 - 108
CK (U/L)	*45808	50 - 150
Lactate (mg/dl)	*16.3	1.8 - 9
Potassium (mmol/L)	*2.8	3.4 - 5.5

*Values outside of the reference range;

**reference values of our laboratory;

ALT-alanine aminotransferase; GGT-gamma-glutamyl transferase; CK-creatinine kinase.

Following admission, the cat underwent immediate emergency treatment; once stabilized, he was subjected to general anesthesia and surgery. Surgical exploration was performed, with debridement of the necrotic tissue, followed by bilateral orchiectomy.

The right eviscerated testicle (Fig. 1) was managed by closed orchiectomy, addressed through the existing wound, which was located in the midline of the perineum, dorsal to the scrotum (Fig. 2).

Delicate caudal traction was applied to the testicle, followed by spermatic cord ligation through overhand hemostat technique. The wound was apposed with simple interrupted suture using 4-0 polyglycolic acid absorbable suture (Dexon, II, Davis and Geck, Danbury, CT). Testicular salvage was not attempted, as it was considered that there was irreversible damage consecutive to noticeable trauma associated tissue injury, late presentation (more than 12 hours of ischemia) as well as following informed owner's consent for neutering. Conversely, the contralateral left testicle was approached through a traditional scrotal incision. Cord ligation was performed by using an overhand hemostat

technique and the incision was left open. The pelvic fracture was postponed for a later surgery and settled three days later. Postoperative management included fluid therapy, analgesia with tramadol (Tramadol, KRKA, Slovenia) and meloxicam (Metacam, Boehringer Ingelheim Vetmedica GmbH, Germany), cold pack wrapping of the perineal region, antimicrobial therapy (amoxicillin-clavulanic acid, Synulox, Zoetis, Belgium SA, Belgium), and appropriate nutritional support. The cat made an uneventful recovery, and routine follow-up physical examination was normal.

Table 2**Summary of complete blood count (CBC) report and differential**

Test	Result	Reference range**
RBC	$7.69 \times 10^{12}/l$	5 - 10
HGB	11.6 g/dl	8 - 15
HCT	32.12 %	24 - 45
WBC	$12.37 \times 10^9/l$	5.5 - 19.5
LYM	$*0.58 \times 10^9/l$	1.5 - 7
MON	$0.57 \times 10^9/l$	0 - 1.5
NEU	$9.99 \times 10^9/l$	2.5 - 14
EOS	$*1.18 \times 10^9/l$	0.1 - 1
BAS	$0.05 \times 10^9/l$	0 - 0.5
LYM	*4.7 %	20 - 55
MON	*4.6 %	1 - 3
NEU	*80.7 %	35 - 80
EOS	*9.6 %	1 - 8
BAS	0.4 %	0 - 3
PLT	$*283 \times 10^9/l$	300 - 800
PCT	0.33 %	-

*Values outside of the reference range;

**reference values according to Abacus Junior Vet 5

RBC-red blood cells; HGB-hemoglobin;

HCT-hematocrit; WBC-white blood cells;

LYM-lymphocytes; MON-monocytes;

NEU-neutrophils; EOS-eosinophils; BAS-basophils; PLT-

platelets; PCT-plateletcrit; l-liter.

DISCUSSION

Scrotal and testicular injuries are uncommon in cats and only a few cases have been reported so far. Furthermore, since male cats are frequently neutered, it significantly reduces the overall incidence of potential diseases of the reproductive tract (10). One review describes canine scrotal lesions and identifies infectious, immune-mediated, endocrinological and neoplastic conditions as the most common etiology encountered, contrary to traumatic lesions (6) Kazhal et. al. (2015) describe testicular evisceration and its surgical mana-



Fig. 1. Appearance of the eviscerated (right) testicle, spermatic cord and scrotum. Parietal tunica vaginalis is still intact, with obvious partial torsion of the spermatic cord.



Fig. 2. Intraoperative aspect of the skin injury following right orchiectomy, represented by a 1.5 cm skin wound, located in the midline of the perineum, dorsal to the scrotum.

gement in a male rabbit (13). The injury resulted due to territorial aggression and required immediate orchiectomy. Ameh et al. (2003) reported a human neonate with scrotoschisis, bilateral extracorporeal testicular ectopia, and torsion of the right testicle, resulting in gangrene. Therapy required orchiectomy of the affected testicle, while the other testicle was maintained and scrotal pexy was performed (3). In our patient, the testicular evisceration had a traumatic etiology and the case management included early surgical exploration followed by bilateral orchiectomy. Neutering of cats and dogs represents one of the most common surgical procedures (12). Castration refers to orchiectomy, a simple procedure that involves surgical removal of the testicles (15). Routine orchiectomy is performed for population control, behavioral problems (14) and various medical conditions, such as penetrating testicular injury, testicular torsion (1, 9, 11), orchitis and epididymitis (1). Congenital abnormalities like unilateral and bilateral cryptorchidism, monorchism (17), epididymal abnormalities, androgen-related diseases (15), uncommon testicular tumors like interstitial cell tumor, seminoma (23), teratoma (18), sertolinoma (5) are also treated by castration. Conventional feline orchiectomy is performed by using a scrotal approach. Spermatic cord ligation could be accomplished by various methods: square knot technique, ligation technique, overhand hemostat technique or the more difficult figure eight hemostat technique (22). In this patient, both spermatic cords were ligated through an overhand hemostat technique.

Gonadectomy has benefits but also certain complications. In cats, there are less potential risks compared with dogs (12). Significant complications repor-

ted, other than surgical and anesthetic ones, are obesity, diabetes mellitus (14), spontaneous capital physal fractures (12), the development of interstitial cell tumors within the testicular adjacent structures (8), or mixed tumors like interstitial and Sertoli cell tumors (16) and prostatic neoplasia (14). In our case, postoperative follow-up examination performed after two months revealed an uneventful recovery, with no further complications.

In humans, there are several reports that document traumatic scrotal / testicular injuries that were managed with surgical exploration and testicular salvage. Two recent reports describe cases of unilateral testicular dislocation that successfully underwent early surgical exploration, followed by testicular repositioning and orchiopexy. Testicular function and fertility are preserved in most of the cases (4, 21), even in cases of unilateral orchiectomy (19). In addition, current guidelines recommend as a standard of care in testicular injuries early scrotal exploration and salvage. Scrotal ultrasonography is highly sensitive and a specific diagnostic tool (7), that can aid in the characterization of various lesions (20) and may provide significant information regarding testicular viability and perfusion (19). Although our approach did not involve any attempt of testicular salvage, it should be considered particularly in reproductive valuable individuals. In cases of irreversible damage, unilateral orchiectomy may be considered.

CONCLUSIONS

Although traumatic scrotal and testicular lesions are uncommon in small animal practice despite the ex-

posed location, the pathology that requires surgery is less frequent. Some scrotal and testicular injuries may represent emergencies and need immediate diagnosis and treatment. This case report highlights the fact that despite low reporting incidence, testicular evisceration should be included on a differential diagnosis list in male reproductive injuries of cats. Further studies are necessary to document feline scrotal/testicular traumatic injuries to allowing future relevant recommendations based on significant clinical data.

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